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ABSTRACT

The elementary INFOE (Information Needed For Occupational Exploration) program is a means of adding career concepts and an occupational information system to a K-14 career information program. The teacher's guide, designed for the elementary grades (4-6), contains units covering introductory activities to 15 career clusters and general information on job titles, and utilizes cluster interest testing. A summary of the pilot study outlines the objectives, methods, data source, conclusions, and recommendations. The elementary INFOE materials and guidelines for their use are described. Career concept definitions, general suggestions, and a reference list complete the first section. In the second section, each unit includes instructions for the teacher, brief descriptions for five selected career clusters and their job families, and suggested individual and group learning activities. The fourth grade examines agri-business and natural resources, business and office, communications and media, construction, and consumer and homemaking clusters. The environment, fine arts and humanities, health, hospitality and recreation, and manufacturing clusters are presented in grade five. For the sixth grade, marine science, marketing and distribution, personal services, public services, and transportation are examined. The career clusters and job titles, interest inventories, and vocabulary for each cluster are appended. (JB)

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Teacher's Guide to Elementary INFOE

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TEACHER'S GUIDE TO ELEMENTARY INFOE

Prepared by

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November, 1974

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University of Tennessee College of Education

and

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INTRODUCTION

The choice of what a person selects as a career is one of the most important decisions he or she makes during a lifetime. The choice of a career influences where a person lives, the choice of friends, living style, health and economic life. The knowledge explosion and the continuously changing world of work within our society demands that public education students be exposed to information to assist them in making appropriate career decisions.

Need for Elementary INFOE Program

The research and commentary on career development indicates, beyond any reasonable doubt, that systematic career planning must begin at the elementary school level. Elementary age youth need the opportunity to continuously and systematically explore, from an internal frame of reference, their values, attitudes and interests in relation to the wide array of educational and career opportunities which may be available to them so that they will avoid premature educational and occupational foreclosure (Gysbers, 1969).

The kindergarten to sixth grade level is the most reasonable place to begin examining the career development process. Children show an interest in the world of work at a remarkably early age. Even before their explicit interest in the world of work, children are exposed to events which shape aspects of their personal development related to work (Osipow, 1969).

Herr (1969, 1970) also concurs that intervention in career development must begin during the first decade of life. This is the nursery of human nature and the time when the attitudes are formed which later become manifest in vocational commitment or rejection. Youngsters in elementary schools must be exposed to experiences which are meaningful in terms of their individual characteristics and to information which is accurate if they are not to carry residuals of exaggeration and over-romanticized occupational stereotypes into later decision-processing.

Bottoms and Matheny (1969) indicated that concern for career development cannot be a one-shot approach that takes place at the junior or senior high level. It is too late when the student reaches the point of making the transition from school to work. Career development should be conceived as a pyramid offering a broad base of exploratory experiences at the elementary and junior high levels, gradually narrowing to a decision point as the student acquires appropriate preparation for his next step beyond school. Such a vocational development theme could serve as a common thread to unify the educational effort at all levels.

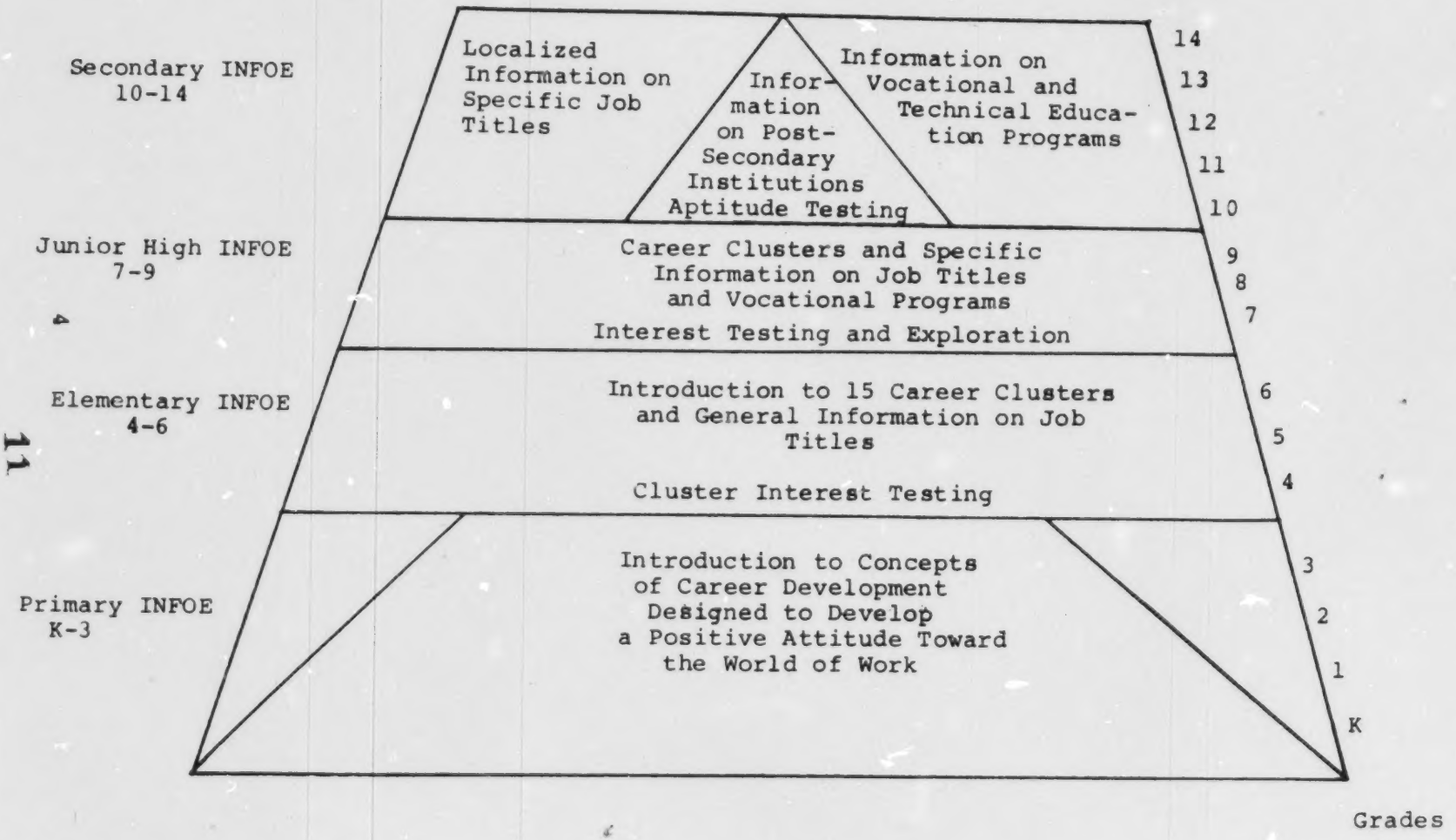
In addition to the preceding comments, the Elementary INFOE program was viewed as a means for adding a vital component for an articulated K-14 career information program. For the past three years, the Tennessee Research Coordinating Unit has been developing an occupational information system to serve students in grades K-14. The information component for grades 10-14 utilizing microfilm aperture cards is called Secondary INFOE

(Information Needed For Occupational Entry) and has been used in schools throughout the State of Tennessee. A component designed for students in grades K-3 is now being developed. This component called Primary INFOE (Information Needed For Occupational Enlightenment) consists of filmstrips and records which are designed to introduce students to basic concepts of of career development. Another component to be designed for students in grades 7-9 is now under development. It is called Junior High INFOE (Information Needed For Exploration-Indepth).

A model depicting the overall INFOE Program is shown on the following page.

MODEL FOR K-14 INFOE

(INFORMATION NEEDED FOR OCCUPATIONAL EDUCATION)



SUMMARY OF PILOT STUDY

The value of a career information program which exposes students to the world of work at an early age is seldom being questioned today. However, there is a serious deficiency of career information available which has been developed and validated for use by students at the elementary school level. With the preceding situation in mind, the Elementary INFOE (Information Needed For Occupational Exploration) pilot study was conducted to assess the feasibility of establishing an articulated system of career information for fourth, fifth and sixth grade students.

Objectives

The specific objectives of the Elementary INFOE study were to:

1. Develop information on 15 career clusters to be used by 4th, 5th, and 6th grade students through the medium of microform.
2. Pilot test the developed materials with elementary students selected from shcools located in the states of Alabama, Georgia, Mississippi, North Carolina and Tennessee.
3. Compare the use of microform and hardcopy for presenting the career information with respect to cost and knowledge gained by students.

Methods

The Elementary INFOE materials were designed to provide students with basic information on career clusters and general information on specific job titles. Twenty INFOEscripts (career briefs) were developed and reproduced on microfilm aperture cards

for each of the 15 career clusters identified by the U.S. Office of Education. One INFOEscript for each cluster consisted of a six-page introduction to the cluster and 19 four-page scripts for each cluster presented information on specific job titles. The 19 job titles were selected to illustrate the diversity of each cluster from unskilled to professional level jobs.

Teachers from participating schools in the five states were presented teachers guides on the use of the materials and were given a two hour orientation on how to present the materials to students. In order to evaluate the reactions of fourth, fifth, and sixth grade students to the INFOE materials, the entire package of 15 clusters was presented to students at each grade level. Students at each grade level were exposed to the materials for the first eight clusters during the period March, 1973, through May, 1973, and to the additional seven clusters during the period September, 1973, through December, 1973.

An additional study was made in the eastern counties of Tennessee to assess the effect of hardcopy and microform for presenting career information. The costs of producing the materials by each method and the benefits of the two methods with respect to student knowledge were compared.

Data Source

To assess the impact of the Elementary INFOE materials, fourth, fifth and sixth grade teachers who used the materials in their classrooms were asked to complete a 10-item questionnaire about their reactions to the materials. In addition, career

awareness test, developed by the researcher, was administered to fourth, fifth and sixth grade students who participated in the study and to a similar group of students who had not used the materials.

The total population involved in the pilot study consisted of 355 fourth grade students (180 experimental and 175 control), 872 fifth grade students (450 experimental and 422 control) and 1020 sixth grade students (550 experimental and 490 control). A modified version of the Nonequivalent Control Group Design using 30 percent of the total population was used in the study. Data were analyzed using analysis of covariance.

For comparing hardcopy presentations with microform, a Posttest-Only Control Group Design was used. A sample of 30 sixth grade classrooms was used in which students in 10 classrooms were exposed to hardcopy presentations; students in an additional 10 classrooms were exposed to microform presentations; and students in the remaining classrooms were exposed to no career information.

Conclusions

The major conclusions drawn from the findings of the study were:

1. Overall teacher reactions to the INFOE materials were favorable.
2. Informal group discussion coordinated with individual study was the most effective technique for using the INFOE materials.
3. Student use of the INFOE materials was as effective as student use of other instructional materials designed for a specific grade level.

4. The reading level of the Elementary INFOE materials was too advanced for many fourth grade students.

5. Minor improvements were identified as being needed to make the Elementary INFOE materials more effective.

6. No one career cluster interested students at any grade level more than another career cluster.

7. The Elementary INFOE materials assisted fourth, fifth and sixth grade students in increasing their awareness of the world of work.

8. Fifteen career clusters of materials consisted of more materials than could be adequately used during a school year at any one grade level.

9. Hardcopy forms of the INFOE materials cost less to reproduce but were not as effective in increasing student knowledge as the microform versions.

Refinement of the INFOE Materials

As a result of the pilot study the following refinements were made in the Elementary INFOE materials:

1. The Teacher's Guide to Elementary INFOE was revised to include suggestions teachers gave for making the use of the materials more effective.

2. The following improvements were made in the INFOE materials:

   a. The introductions to career clusters were reproduced on overhead transparencies so more effective group instruction could be used in introducing students to the materials.

   b. The INFOE materials were divided into selected clusters for each grade level, e.g. five clusters for grade four, five clusters for grade five and five clusters for grade six plus the previous ten clusters for review.

   c. The materials identified for fourth grade students were revised to reflect a lower reading level. Third grade reading level was selected as being more effective for the average fourth grade student.

THE ELEMENTARY INFOE MATERIALS

The world of work consists of several thousand defined occupations, with many of the same occupations having variations in different parts of the United States which results in endless uniqueness. To make an information system about the world of work educationally manageable and useful, information on careers must be grouped or clustered so it can be easily analyzed.

Career Clusters

In INFOE, the cluster approach of grouping careers from a common area of work into easily recognizable clusters is used. Each cluster can be broken down into smaller groups of careers that are very closely related or build one on the other to provide a service or product. The smaller groups within each cluster are called job families.

The relationship of careers in Career Clusters and Job Families is shown in INFOE by the picture of a tree and its fruit. The tree illustrates the large Career Cluster. The fruit of the tree illustrates the Job Family. The introduction to each cluster (reproduced in this booklet for you) assist the student in exploring the job families of each cluster.

Twenty INFOEscripts were developed for each of the fifteen career clusters identified by the U.S. Office of Education. One INFOEscript for each cluster consists of an overview of the cluster and explanations of the job families included in the cluster. In addition, nineteen 4-page INFOEscripts for each cluster contain general information on specific job titles.

It should be kept in mind that Elementary INFOE IS NOT a career education program but it can be used as a part of such a program. Elementary INFOE IS an elementary information system designed to orient students to the world of work. Specifically, the purpose of Elementary INFOE is to provide:

1. An articulated assortment of information on careers which is developed around the interests and abilities of 4th, 5th and 6th grade students.
2. Materials with built-in flexibility so they can be used as a component of a career education program or as a supplement to a traditional elementary education program.
3. Inexpensive production and duplication of materials about the world of work.
4. Materials designed for individual student use and for group instruction.
5. Information on specific job titles for each cluster to illustrate the range in levels of occupations available from semi-skilled to professional.

The Elementary INFOE Microfilm Aperture Card

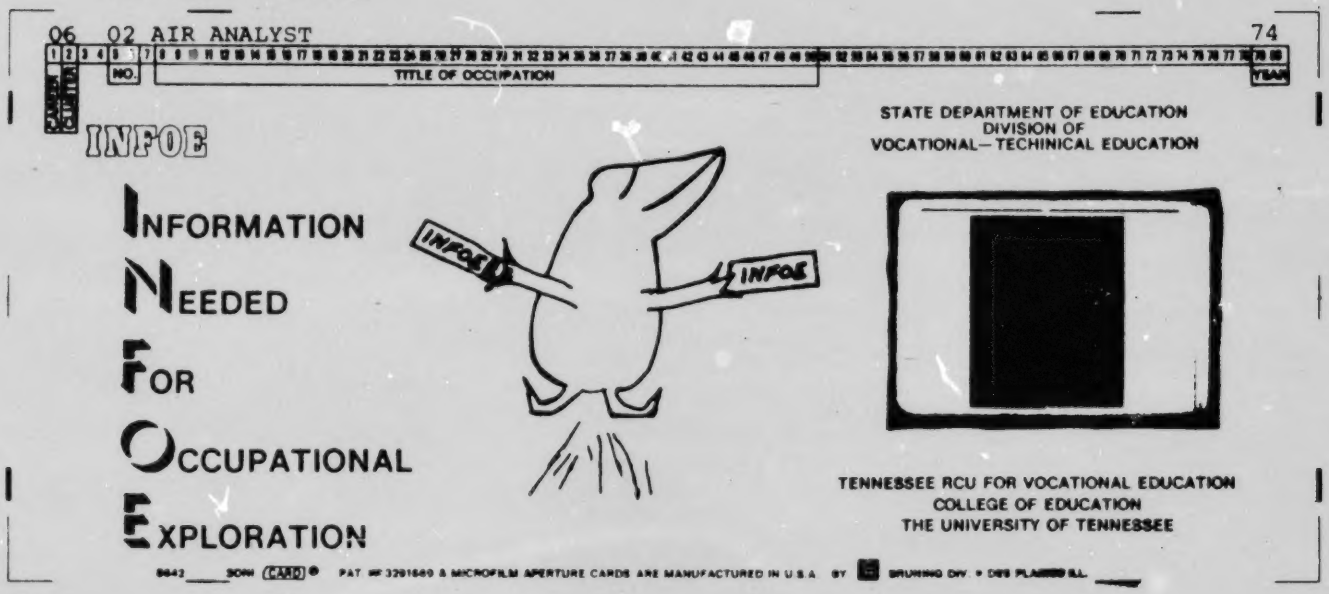
The medium selected for presenting the Elementary INFOE information is a microfilm aperture card. The microfilm aperture card which contains the Elementary INFOEscript is a conventional computer card with a rectangular opening in which a frame of microfilm is mounted. The first card for each cluster contains a 6-page description of the cluster. The other 19 cards for each cluster contains the following 4 pages of information on a specific job title:

Page 1 - Description of job title.
Page 2 - Traits of persons employed in the job.
Page 3 - What a person with the job title does.
Page 4 - Advantages and disadvantages of the job. What preparation is needed by a person entering the job.

The information punched in and typed on the aperture card consists of the following from left to right:

1. Two digit number - identifies cluster
2. Two digit number - identifies number of job title in cluster
3. Title - Name of cluster or job title
4. Two digit number - Year card was developed.

Example of Card



Materials by Grade Level

Materials provided for fourth grade teachers and students are as follows:

1. One packet of overhead transparencies to be used by the teacher in introducing fourth grade students to the following five clusters:

   a. Agri-business and Natural Resources
   b. Business and Office
   c. Communications and Media
   d. Construction
   f. Consumer and Homemaking

2. One box of 100 aperture cards (20 cards for each of the clusters).

3. Teacher's Guide

Materials provided for fifth grade teachers and students are as follows:

1. One packet of overhead transparencies to be used by the teacher in introducing fifth grade students to the following five clusters:

   a. Environment
   b. Fine Arts and Humanities
   c. Health
   d. Hospitality and Recreation
   e. Manufacturing

2. One box of 100 aperture cards (20 cards for each of the clusters).

3. Teacher's Guide

Materials provided for sixtn grade teachers and students are as follows:

1. One packet of overhead transparencies to be used by the teacher in introducing sixth grade students to the following five clusters:

   a. Marine Science
   b. Marketing and Distribution
   c. Personal Services
   d. Public Services
   e. Transportation

2. One box of 300 aperture cards (100 cards for the five new clusters and 200 cards covering the information covered at fourth and fifth grade level).

3. Teacher's Guide

GENERAL GUIDELINES FOR USING THE ELEMENTARY INFOE MATERIALS

This section is intended as a general guide and resource for implementing and using the Elementary INFOE materials at grade levels 4, 5, and 6. Some suggested career concepts and general suggestions for using the material will be presented. More specific information for each grade level will be presented

under the following headings presented in other sections of this guide:

1. Instructions for Fourth Grade Teachers, pp. 18-31.
2. Instructions for Fifth Grade Teachers, pp. 32-44.
3. Instructions for Sixth Grade Teachers, pp. 45-59.

Career Concepts

In introducing students to the INFOE materials and in directing students' use of them, teachers should be familiar with the following concepts on which the materials are based:

1. Work has dignity. (4th Grade)

   Work at all levels has meaning and purpose. An unskilled worker can take pride in a job well-done the same as a medical doctor. Students should be made aware of the contributions that workers at different levels of responsibility make to society. As a teacher you can point out various applications of this concept in the INFOE materials. For example, you might explain the benefits to society of a low level job in any of the clusters as compared to a job title that is considered to be at a higher level of responsibility.

2. People work for various rewards or satisfactions. (4th Grade)

   Some people work at a job, not because they like the work, but merely to earn a living. Other people may work at a volunteer job without pay because of personal satisfaction. Examples of this concept can be explained to students by having them analyze the advantages and disadvantages of different types of jobs. It also should be pointed out that what is a disadvantage to some people may be an advantage to others.

3. School is the student's world of work. (4th Grade)

   Basic skills such as writing, reading, listening and solving problems are skills that will be needed in any career. Illustrations showing how a student's role in school can be equated to a worker's role in a career cluster can be given to demonstrate this concept.

4. Individuals need special training for most careers. (4th Grade)

   Specialization in the modern world of work requires workers to develop certain expertise in the tasks they perform. The amount of formal education necessary for employment in certain careers can be pointed out to illustrate this concept.

5. Cooperation among workers is essential in many careers. (5th Grade)

   Many complex services and accomplishments are dependent on the efforts of individuals to pool their resources to complete a common goal. For people to accomplish a common goal requires a high degree of cooperation. Examples of cooperation needed among workers in job families for each career cluster may be pointed out to illustrate this concept.

6. Knowledge of career clusters is helpful in locating, assessing and using information leading to a wise career choice. (5th Grade)

   Learning about career clusters and the classification of jobs in them helps students focus on areas of interest. Assisting students to focus on possible career clusters at an early age should help them to narrow their career choices in the future.

7. Career choice has an impact on an individual's life style. (5th Grade)

   An individual's life style is determined to a large extent by his occupation. The hours he works, level of his responsibilities and the type of people with whom he works may affect his social life. Illustrations of this concept may be pointed out by analyzing the job titles in each of the clusters.

8. Individuals differ in their abilities, interests, aptitudes and values. (5th Grade)

   Each individual has unique characteristics which may make him more suitable for one career than another. Students at an early age should be given the opportunity to analyze his unique characteristics. In addition, students should be made aware that many of their interests and values will change as they grow older. However, individual characteristics do have a bearing on satisfaction with a person's life work

and students should be encouraged to compare their individual traits to those of workers in a career in which they might have an interest.

9. Technological and sociological changes eliminate and create jobs. (6th Grade)

Students should be made aware that some jobs they sutdy now will not be available when they are adults because new ways of doing some of the skills of the job may change the nature of the work. New inventions may create new jobs and do away with some jobs as they exist today. Changes in a country's culture affect jobs. Illustrations of inventions (e.g. cotton gin) and cultural changes (e.g. drugs) can be pointed out to illustrate this concept.

10. Geographical settings determine the types of careers available. (6th Grade)

The natural resources of an area determine to a large extent the type of jobs that are available in a specific geographical setting. Numerous examples of careers that would not be likely to be found in a given geographical area may be identified to illustrate this concept.

11. Information about a variety of careers is needed by all individuals. (6th Grade)

Individuals need to know about careers of other people in order to appreciate what services others perform for them. In addition, since the average person changes careers five times in a life time, it is very important that he knows about relationships between different jobs.

12. Career development requires a continuous and sequential series of choices. (6th Grade)

Individuals make choices daily and their background of knowledge and experience play an important part in how they go about deciding on what choices are made. Whether students' choices involve what to wear, who to play with or what they might like to do in the future, there are steps of decision-making in which all people practice. Students at an early age may be given experience in decision-making which can be helpful to them in making decisions about their future. More realistic goals can be set by people who have had experiences in identifying and choosing from alternatives.

General Suggestions for Implementing INFOE

1. Orient yourself to the INFOE materials for your grade level.

2. Learn how to operate the microfiche reader and demonstrate its operation to your students.

3. Have your students complete the "What Do I Like" Interest Inventory. (Appendix B)

4. Have student study the vocabulary lists for the clusters to be studied. (Appendix C)

5. Work out a schedule for student use of the materials.

6. Use the overhead transparencies to introduce students to each cluster.

7. Select individual and group activities for your students from the specific instruction of this guide.

Keep in mind that suggestions given here do not apply equally well in all situations. Therefore, it will be necessary for you to use techniques that best meet the needs of your students. Some students will be able to use the materials on an individual basis after being oriented to them, while other students can best benefit from group instructions.

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INSTRUCTIONS FOR FOURTH GRADE TEACHERS

The purpose of this section is to give you more specific information on the five career clusters covered by the fourth grade materials. To supplement the packet of overhead transparencies a summary of each cluster's content will be presented. In addition, suggested individual and group learning activities will be given.

FOURTH GRADE CAREER CLUSTERS

In this section a brief description of the five fourth grade clusters will be presented. In addition, a brief description of the job families within each career cluster will be given.

Agri-Business and Natural Resources Cluster

The Agri-Business and Natural Resources Cluster includes careers which are concerned with providing food, clothing and shelter. The need for food, clothing and shelter has been basic to man throughout history. Today, because of the increase in world population and the many technological changes, the business of meeting man's basic need is complex. The vast complex of agriculture and natural resources is charged with furnishing all the basic raw materials man uses for food, the energy to move his machinery and the recreation surroundings to provide places for relaxation. Thirty to forty percent of the U.S. labor force is engaged in some aspect of food production, processing and delivery of foodstuffs to the American table. (Millions of workers also are employed in the production of oil, ores, coal and minerals.)

The Agri-Business and Natural Resources Cluster is divided into five basic job families. The families and their descriptions are:

1. Agricultural Production, Processing & Marketing.

   This family includes careers which are concerned with growing plants and animals for food and clothing. It also includes workers who process and market the food products produced by farmers.

2. Land, Water and Wildlife Management.

This family includes careers which develop, grow, protect and manage our land, water and wildlife resources. People who work in this job family include those who work with the protection of our lakes, streams, rivers, fish and wild animals.

3. Mineral Resources.

This job family is made up of workers who provide us with coal, ores, petroleum and raw building materials such as rock and gravel. Minerals mined or processed by these workers provide energy to heat and cool homes and to transport goods and people.

4. Research and Regulations.

This job family includes careers concerned with agricultural research and with regulating natural resources used by man. Many people who work in this family perform jobs which identify and regulate how natural resources are used by man. Some jobs are concerned with enforcing agricultural and natural resource laws. Most of the careers in this family are with the state or federal government.

5. Service.

The agricultural service job family includes careers in which support services are provided for the farmers who grow plants and animals. Workers in this job family provide consumable supplies, equipment, services and technical assistance to the people engaged in the production phase of agriculture.

Business and Office Cluster

The Business and Office Cluster includes all the careers which are directly involved with operating an office or business. Workers within this cluster may be concerned with keeping records of all kinds, operating computers, running different office machines and equipment or managing office workers. This cluster is divided into four job families, each of which deals with a particular function to keep an office or business operating smoothly.

The job families within the Business and Office Cluster are:

1. Accounting and Finance.

   This job family is defined as the science, art, or system of keeping, analyzing and explaining business accounts; and in dealing with money. Workers in this family deal with financial transactions of businesses, banks, savings and loan companies, insurance companies and the stock exchange.

2. Computer.

   This job family involves the electronic method of storing instructions, performing complex calculations, or compiling, correlating and selecting data. Workers within this job family perform the various functions needed to operate all types of business computer systems.

3. Management and Personnel.

   This job family includes workers who are involved with planning, directing and controlling personnel and with the functions of recruiting, interviewing and hiring of people engaged in any work, service or business. Workers in this family plan, direct and control the operation of a business.

4. Secretarial Science and Office-Clerical.

   This job family includes workers who specialize in keeping records, taking dictation, composing and editing. In addition, it includes workers who perform office and clerical duties not requiring extensive knowledge of systems or procedures.

Communications and Media Cluster

The Communications and Media Cluster includes the millions of workers who are engaged in the vastly expanding field of providing ways and means of sharing ideas and information. Since his most primitive beginning, man has constantly searched for new and better means of communicating. Cave paintings, beating

a hollow log with a club and smoke signals were used by primitive man for communicating. As man became more sophisticated, so did his communication devices. Inventions such as the printing press, the telegraph, the telephone, radio and television ushered in a communication explosion which is progressively mushrooming as more advances in technology are made. Many of the careers in this cluster require some form of training or apprenticeship, but by no means is a college degree always required to obtain a job in the many areas of communications and media.

The four job families within the Communications and Media Cluster are:

1. Journalism.

   This job family offers rich opportunities for those whose interests are writing and discussing the facts behind a variety of situations. Newspaper, magazines, trade publications, radio and television news departments and book publishers are sources of employment for a person desiring a career in journalism.

2. Motion Pictures and Broadcasting.

   This job family includes those careers involved in the creation and production of motion pictures. In addition, it includes those workers who are involved in the creation and production of recorded sound.

3. Radio and Television Broadcasting.

   This job family provides opportunities for those who desire a career in the creation, production and transmission of radio and/or television programs.

4. Telephone and Telegraph.

   This job family involves careers that are concerned with the installation, maintenance and operation of systems and equipment for wire and radio transmission of messages.

Construction Cluster

The Construction Cluster includes careers which are concerned with the building of homes, offices, industrial plants, roads, bridges, airports and dams. Occupational opportunities within this cluster increase or decrease with the state of the economy. In times of industrial expansion jobs in this cluster are plentiful but at other times jobs may be difficult to find.

The Construction Cluster may be divided into four basic job families. These families are:

1. Building Materials.

   This job family includes workers who use various types of building materials such as wood, metal and masonry to construct buildings and other structures. This family includes workers with job titles such as carpenters, sheetmetal workers, plumbers, bricklayers, concrete masons and millwrights.

2. Engineering and Support Services.

   This job family includes workers who plan, design and oversee the construction of a variety of structures. This family offers a variety of opportunities for construction engineers and technicians who provide the basic planning and design of a variety of structures.

3. Heavy Equipment Operations.

   This job family consists of workers who make it their career to operate and maintain various types of power driven construction machinery. Operating engineers operate and maintain such machines as tractors, cranes, bulldozers, pile drivers, concrete mixers, and pumps.

4. Wiring and Finishing.

   This job family consists of careers which are concerned with what must be done to electrically equip and/or finish a structure. This family includes the installing and maintenance of electrical wiring as well as painting, insulating, sheetrocking, floor covering.

Consumer and Homemaking Cluster

The Consumer and Homemaking Cluster is made up of careers which require background in home economics and consumer education. The field of home economics has broadened from the teaching of traditional homemaking skills to include the teaching of consumer skills. The purpose of consumer education is to educate families to be able to make the most of the resources at their command and to enhance individual, family and social well-being in the process. Hence, careers within this cluster are increasing rapidly.

Outside the teaching field, most of the career opportunities for consumer and homemaking specialist are in business. Most of these careers are in the areas of research and testing of products or the promotion of products or services. Food specialists, housing and household equipment specialists, and clothing and textle specialists make up the greater part of the consumer and homemaking cluster. Directly or indirectly workers in this cluster make a considerable contribution to the welfare of the consumer.

The Consumer and Homemaking Cluster is made up of four job families which are:

1. Family Management and Relations.

   This job family is made up of workers who are concerned with the most efficient use of time, energy and money in managing a household. In addition, it includes careers which are concerned with all the facets of family relationships and how the total family environment affects the development of the child.

2. Food Specialist.

The Food Specialists job family includes careers concerned with the development and improvement of food. This broad area includes careers in research of human nutritional needs, in institutional food service management and/or in the sales promotion or food products through advertising, public relations, or consumer service positions.

3. Housing and Household Equipment.

This job family includes careers which are concerned with more beautiful and efficient design and decoration of housing. In addition, it includes those careers which are concerned with the development and improvement of household equipment.

4. Textiles and Clothing.

Careers within this job family are concerned with the development and testing of textiles and the styling and designing of clothes. In addition, some workers in this family are involved in promoting, buying and selling textile products.

SUGGESTIONS FOR USING THE FOURTH GRADE INFOE MATERIALS

After you have familiarized yourself with the fourth grade materials you will be ready to plan how you will use them in your classroom situation. Most teachers have found the subjects of language arts and social studies to be ideal for integrating the learning activities and the INFOE materials into their curricula. Therefore, it is suggested that you select learning activities from this section which can be easily integrated into your daily lessons.

Some general suggestions on how to use the INFOE materials with fourth graders will be given in this section. In addition, a list of sample learning activities will be given to help you emphasize each of the four career development concepts selected for fourth graders.

Implementing the Fourth Grade Materials

The fourth grade INFOE aperture cards are designed primarily for individual student use. However, materials are provided to assist you in making group use of the materials.

In Appendix A, you will find a two-page inventory list of the five INFOE clusters selected for fourth graders. You may wish to tear out this list and duplicate it to be used as individual checklists by students so they will have a record of jobs they have studied.

In Appendix B, you will find a simple interest inventory entitled: "What Do I Like--Fourth Grade." This interest inventory

may be duplicated and administered to your students to assist them in selecting a cluster of their choice to study. Teachers have found this inventory to be useful in motivating students to study the INFOE materials.

In Appendix C, a list of new words which are encountered in each of the five clusters of the fourth grade materials is presented. You might wish to duplicate these words for students to study before using the INFOE materials.

The overhead transparencies which are included in the fourth grade packet of materials are designed to help you introduce students to the broad overview of each of the five fourth grade career clusters. These transparencies may be useful for introducing students to the clusters or for reviewing the clusters already studied. You may wish to add color to these transparencies by coloring the drawings with transparency coloring pens.

Learning Activities

After students have had opportunities to use the INFOE materials, they should be ready to engage in the activities given in this section. Examples of activities to be used in emphasizing each of the fourth grade concepts will be given.

Concept 1: Work has dignity.

Learning Activity 1: Discuss the work of mothers and fathers and ask children to tell how such work helps their family.

Learning Activity 2: Discuss with your students the reasons they like or do not like certain jobs they have to do. You may ask, "How do you feel when you have done a job well?". Help students understand that work makes people feel useful and needed; that satisfaction from work comes from doing a job well; that other people appreciate work which is done well.

Learning Activity 3: Divide Students into groups of two. One child will role play the work of a job title which has been studied. The other student will interview to find out how he likes his job, why he thinks it is important and what satisfaction he gets from it. If possible the interview should be recorded and played back for the class and be used for discussion.

Learning Activity 4: Divide the class into four or five groups. Ask each group to plan a space expedition to start a new settlement on another planet. Which workers from the clusters studied would they include and why? What other workers should be added and why? Let each group leader report to the class. It should emerge that work performed by many semi-skilled workers may be necessary for survival.

Concept 2: People work for various rewards or satisfactions.

Learning Activity 1: Assign each student in the class a different job title within the fourth grade INFOE materials to study. Ask each child to explain what possible rewards or satisfactions a person could get from working in that job.

Learning Activity 2: From the list of job titles within the five fourth grade career clusters, let each student choose a job title to write a paragraph which describes the accomplishments of the worker and tells why the worker might be proud of the work he or she does. Let the students read these reports to the class and discuss the various reasons why workers can feel proud of their work.

Learning Activity 3: Ask your students to think of something they did especially well. Discuss how they felt while they were working and how they felt when they finished.

Learning Activity 4: Lead your students in a discussion of the volunteer work their parents do. Discuss why people do volunteer work. List agencies in the community which use volunteer workers (Scouts, Red Cross, YMCA, etc.).

Concept 3: School is the student's world of work.

Learning Activity 1: Divide class into small working groups. Ask each group to select a job title from the fourth grade INFOE list and pretend they are

employed in the job selected. Find out what the worker needs to do to perform the job well. Make a list of the work habits that would be helpful. Which of these work habits are being learned now in school?

Learning Activity 2: Ask parents and/or other workers from the school and community to come to the classroom and tell about their work and the training they had for the job. Before the visit, discuss with the children questions they might want to ask: for example, "What special training did you have?" "How did school help you?"

Learning Activity 3: Ask your students to identify jobs in which the ability to read is NOT important. List these jobs on the board and discuss them. Help the students realize that these jobs may be done with more satisfaction if the people doing them are able to read.

Learning Activity 4: Discuss the jobs that mothers and fathers do in their home. How do parents use math in the work they do at home (knowing how much food to buy, what time to get up to get to school or work on time, etc.). Have students identify job titles from the fourth grade INFOE materials which require a worker to use math.

Concept 4: Individuals need special training for most careers.

Learning Activity 1: Have students draw or paint pictures showing what they want to be. Let them discuss what they need to learn to become the worker they have chosen. Make a bulletin board display on the pictures. Title the bulletin board "I Want To Be".

Learning Activity 2: Ask each student to select a job from the fourth grade INFOE list which he or she might like to do when grown. Have the students find out what qualifications are needed and what training or education is necessary for the job. Have each student make a written or oral report of what they found.

Learning Activity 3: Visit a high school vocational class with your students and let them observe the special training the vocational students are receiving. Have students take notes of what they saw. Lead a class discussion of how the vocational students will use their training in earning a living.

Other Learning Activities

1. What's Your Line? (Small group game)

   Divide class into several groups of matched teams.
   Example: Class of 30

   Six teams of 5 students each

   Team A - Team B
   Team C - Team D
   Team E - Team F

   Have each team decide among themselves four careers to be acted out. Then the game would be played as follows:

   Team A: "Bum, Bum, Here I Come!"

   Team B: "What's Your Line?"

   Team A: "Making Time!"

   Team B: "Get To Work and Make it Shine."

   Team A then acts out the first agreed upon career and Team B tries to guess it. Record the length of time it takes for Team B to guess the career. Now reverse the call and response and continue with the other careers. The team which requires the least time to respond correctly wins.

2. Scrap Book

   Divide class into small groups and assign each group a career cluster for which they are to prepare a scrapbook of pictures illustrating characteristics common to the jobs in the cluster. Allow the group having the best scrapbook to prepare a bulletin board illustrating the careers in their assigned cluster or a bulletin board depicting what they would like to be.

3. Job Title Word Puzzle

   Construct puzzles for each of the fourth grade career clusters similar to the one on the following page. The example given may be torn out and duplicated for student use.

AGRI-BUSINESS AND NATURAL RESOURCES WORD PUZZLE

F O R E S T R A N G E R U
I L Y X J M A W F E I T A
S H T R C T P F Q S O M J
H Q R F S O P R Y D M Y A
E W U E K Z E L H C I B P
R I C K Q X R Y L R N K H
M T K O I L P U M P E R D
A M F P B W A N H N R A F
N D A H U N T E R G I E B
S P R X L K U M P R C J O
U G M S U R V E Y O R I G
Q T E J N V N M I Y P X N
P C R O Y J A Z O B W I U
E I Q D L N D R I L L E R
U C U L U O L V A D K I S
L P A A M I G Z F O H W E
T K R J B M W I I O V J R
R X R B E U N Z S D H A Y
Y O Y P R M G Q H T V L M
R G W B J L M E F X G I A
A S O N A U C G A B M L N
I E R R C C H M R H F T R
S F K Q K S F T M P N V O
E T E H R N Z I E Y S K P
R D R D T C R O R E Q J O

WORDS TO LOOK FOR

DAIRYMAN
DRILLER
FISHERMAN
FISH FARMER
FOREST RANGER
GEOLOGIST
HUNTER
LUMBERJACK
MINER
NURSERYMAN
OIL PUMPER
POULTRY RAISER
QUARRY WORKER
SURVEYOR
TRUCK FARMER

FIND THE WORDS LISTED ABOVE AMONG THE SCRAMBLED LETTERS AND CIRCLE. THE WORDS MAY BE SPELLED VERTICALLY, HORIZONTALLY, OR DIAGONALLY.

INSTRUCTIONS FOR FIFTH GRADE TEACHERS

The purpose of this section is to give you more specific information on the five career clusters included in the Elementary INFOE materials for fifth graders. To supplement the packet of overhead transparencies a summary of each cluster's content will be presented. In addition, suggestions on using the materials which includes individual and group learning activites will be given.

FIFTH GRADE CAREER CLUSTERS

In this section a brief description of the five fifth grade clusters will be presented. In addition, a brief description of the job families within each career cluster will be given.

Environment Cluster

The Environment Cluster includes the careers which have emerged in the past two decades and which are concerned with improving and protecting the working, sanitary and social conditions of mankind. The early need for people with training in environment careers was met by personnel from the areas of health, recreation, public service and a few private enterprises. This supply was soon exhausted, but the need for people trained in the environment area has continued to grow. Therefore, much effort is being exerted today to expand training facilities to prepare people for careers in the fast expanding area of environmental work.

The Environment Cluster consists of four basic job families which are:

1. Disease Prevention.

   Careers within this job family are concerned with identifying and controlling diseases and pests which affect man and his environment. Workers in this family include researchers, technicians and inspectors who work to control the spread of disease or disease causing pests.

2. Environmental Planning.

   This job family includes careers concerned with studying population growth and land use. Most of the careers within this job family are found in government employment or with private consultant firms.

3. Pollution Prevention and Control.

Workers within this job family monitor, inspect, measure or regulate the input of undesirable materials into our air, water or soil. This family includes careers which deal with water, soil and air pollution and the efforts to measure and control this pollution.

4. Resource Control.

This job family includes careers concerned with conservation, not as a means of making money, but as a means of preserving our resources for beauty, recreation and tourism. Workers in this family are concerned with regulating land use, maintaining the environment and with enforcing laws governing the use of resources.

Fine Arts and Humanities Cluster

The Fine Arts and Humanities Cluster includes careers in the humanities which encompass those studies and activities concerned with the social, moral and aesthetic values of our culture. The fine arts are concerned primarily with aesthetic expression and serve the development of man's highest technical skills. On a lesser plane, the arts offer diversion and entertainment; in whatever realm, the arts directly affect the quality and pattern of our contemporary life.

Due to the fact that the area of fine arts and humanities does not lend itself to a breakdown of career by functional areas, the job families selected for this cluster reflect on the educational and training areas within the arts. Since the careers within this cluster could be listed under almost any of the other clusters, this cluster lends itself to a more vague tone. However, for purposes of exploring the broad world of work, this fact is of little consequence.

The four job families within the Fine Arts and Humanities Cluster are:

1. Language, Writing and History.

   This job family includes careers concerned with the written and spoken words and history of people. Workers within this family may be concerned with the written or spoken languages or history of people and with the collecting and displaying of materials of people's expressions in museums.

2. Performing Arts.

   This job family includes careers in dancing, drama, and music. The competition of performers in this job family is great. Training for the performing arts generally begins at an early age and becomes intensive in the early teens. People preparing for a career in this area need not only natural talent and years of training but a driving desire to succeed.

3. Religion and Theology.

   This job family includes careers which involve some considerations not ordinarily present in other occupations. Most of the clergy are admitted to the ministry through ordination and these careers are usually within an organized religious community. Theology is a special branch of religion concerned with the analysis and interpretation of traditional doctrines of religion. Thus, theologians are generally college or seminary teachers and writers.

4. Visual Arts.

   This job family is made of persons who prepare paintings or other types of art work. Careers within this job family involve a person expressing his own ideas and feelings in paintings or photography or working out someone else's ideas.

Health Cluster

The Health Cluster includes the careers which are directly responsible for looking after our medical and dental needs. Due to increasing population and greater individual emphasis on health

protection and care, there is a tremendous need for more health workers. There are many opportunities in the health field for workers at all levels who have an interest in making life healthier, happier and more productive for all people.

The Health Cluster is divided up into four basic job families. These job families are:

1. Dental Science Services.

   This job family consists of careers which are concerned with treating ailments or abnormalities of the gums and teeth and preventing their occurence.

2. Hospital and Medical Office.

   This job family includes those careers which are concerned with the operation of a hospital or medical office. Workers in this family may help in general ways such as keeping records, making appointments or handling bills. Some workers may do administrative jobs which require the managing and directing of other people in providing health services.

3. Medical Professions.

   The professions included within this family all require special academic preparation within the medical field and licensure by medical boards. Careers within this family are concerned with providing direct medical care.

4. Medical Supportive Personnel.

   This job family includes careers which are not necessarily involved directly in the treatment of a patient. Workers in this area support the whole medical profession by providing laboratory research or diagnosis services and other specialized supportive services.

Hospitality and Recreation Cluster

The Hospitality and Recreation Cluster includes careers which are related to assisting people in pursuing pleasure and relaxation activities. "Hospitality" refers to those careers

which deal with tourists or other travelers while "recreation" refers to careers which entertain or amuse the traveler.

The Hospitality and Recreation Cluster consists of three basic job families which are:

1. Natural Resources Recreation.

   This family consists of careers which are concerned with providing recreational opportunities for persons who wish to enjoy the wonders and beauty of nature. This family includes workers such as tour guides, concession attendants, zoo keepers and life-guards.

2. Sports and Entertainment.

   This job family includes those careers which provide amusement or entertainment for other people or in which people perform in sports for the enjoyment of other people.

3. Travel Bureaus and Agencies.

   This job family consists of the careers which provide information and services to the traveling public. Promoting goodwill, providing information and making travel arrangements are some of the services provided by workers in this job family.

Manufacturing Cluster

The Manufacturing Cluster is enormously complex. It includes careers essential to the process of making wares or products by hand or by machinery. Manufacturing of a product may be on a large scale, where huge quantities are produced or on a small scale where only a few items are produced. Whatever is manufactured is usually classified as durable or non-durable goods and may be finished or semi-finished. Manufacturing workers produce products which range from huge earth-moving equipment to micro-mini parts of an electronic instrument.

The Manufacturing Cluster consists of four basic job families. These families are:

1. Craftsmen and Skilled Workers.

   This job family is made up of careers in the highly skilled and skilled working areas of manufacturing. The craftsman is highly skilled in his particular trade and possesses leadership ability and planning expertise. The skilled worker makes, assembles, operates and/or maintains the complex machinery within manufacturing plants.

2. Engineers and Technicians.

   This job family consists of the professionals and support technicians who design, plan, test, inspect and regulate manufacturing products.

3. Management and Research.

   This job family is concerned with the management and scientific research of the manufacturing area. Management includes careers within supervision, sales, purchases and industrial and public relations. Research includes the scientists who are involved in basic research of materials used, quality of production and investigation of areas where products may be used.

4. Operatives and Laborers.

   This job family includes those workers who operate the machinery within a manufacturing plant. It also includes the laborers who perform unskilled tasks.

SUGGESTIONS FOR USING THE FIFTH GRADE INFOE MATERIALS

After you have familiarized yourself with the fifth grade materials, you will be ready to plan how you will use them in your classroom situation. Most teachers have found the subjects of language arts and social studies to be ideal for integrating the learning activities and the INFOE materials into their curricula. Therefore, it is suggested that you select learning activities from this section which can be easily integrated into your daily lessons.

Some general suggestions on how to use the INFOE materials with fifth graders will be given in this section. In addition, a list of sample learning activities will be given to help you emphasize each of the four career development concepts selected for fifth graders.

Implementing the Fifth Grade Materials

The fifth grade INFOE aperture cards are designed primarily for individual student use. However, materials are provided in the INFOE kit to assist you in making group use of the INFOE materials.

In Appendix A, the second two-page inventory list of career clusters (6 through 10) is for use by fifth graders. It will be helpful if you duplicate this list to be used as individual checklists for students to keep a record of jobs they have studied.

In Appendix B, you will find a simple interest inventory entitled "What Do I Like--Fifth Grade?" This interest inventory may be duplicated and administered to your students to assist them in selecting a cluster of their choice to study. Teachers have found this inventory useful in motivating students to study the INFOE materials. Instructions for using the interest inventory are included in the first page of Appendix B.

In Appendix C, a list of new words which are encountered in each of the five clusters (clusters 6 through 10) of the fifth grade materials is presented. You may wish to duplicate these words for students to study before using the INFOE materials.

The overhead transparencies which are included in the fifth grade packet of materials are designed to help you introduce students to the broad overview of each of the five fifth grade career clusters. These transparencies will be useful for introducing students to the clusters or for reviewing the clusters already studied. You may wish to add color to these transparencies by coloring the drawings with transparency coloring pens.

Learning Activities

After students have had an opportunity to explore the fifth grade INFOE materials, they will be ready to engage in the activities given in this section. Examples of activities to be used in emphasizing each of the fifth grade concepts will be given.

Concept 5: Cooperation among workers is essential in many careers.

Learning Activity 1: Discuss the characteristics of a group, the advantages of working together in a group and the disadvantages of working in a group.

Learning Activity 2: Help students make a chart describing the "classroom group" and the activities the students do as a group (ride the bus, go to lunch, etc.). What are the advantages of doing these things as a group?

Learning Activity 3: Organize the class to role play workers in a hospital. How many different workers are necessary? What will happen if some people on the hospital staff do not do their part? What would be some problems a person would have in running a hospital by himself?

Learning Activity 4: Make a bulletin board showing how workers in the Manufacturing Cluster must cooperate. The title of the bulletin board might be "Cooperation in Manufacturing is Essential."

Learning Activity 5: Ask students to observe school cafeteria workers and how they work together. If possible, ask the workers to explain their jobs and what the problems would be if they did not work together.

Concept 6: Knowledge of career clusters is helpful in locating, assessing and using information leading to a wise career choice.

Learning Activity 1: Ask your students to discuss sports they enjoy playing or watching. Identify all the workers involved in making professional sports possible. For example: coach, ticket seller, umpire, players, etc. Emphasize how this knowledge of who does what is helpful in helping a person decide what he wants to pursue as a career.

Learning Activity 2: Divide your class into small working groups. Ask each group to select a different worker in dentistry and find out what each worker does. Have each group report to the class on what the worker they selected does.

Learning Activity 3: Divide students into small groups and assign each group one of the five fifth grade clusters to study. Have each group make a report on where they could go to obtain additional information on careers within each cluster.

Concept 7: Career choice has an impact on an individual's life style.

Learning Activity 1: Ask your students to keep a daily "activity record" for three days. Have each student make a chart (bar graph or line graph) showing the amount of time spent in eating, sleeping, personal care, work and leisure. Discuss with the student how their life style is affected by school and how this relates to a person's work.

Learning Activity 2: Contrast the production of goods today with that of colonial times. How have advances in manufacturing helped people to have more leisure time? (Production of food and clothing have largely been removed from the home; machines and tools have made production of goods more efficient, etc.) Students might select a product and trace the historical development of its production from colonial times to the present. What effect has this product had on people's life style?

Learning Activity 3: Ask each student to choose one job title from the Hospitality and Recreation Cluster and study the INFOE card for it. Oral or written reports may be given to the entire class on how each worker's life style may be affected by his job.

Concept 8: Individuals differ in their abilities, interests, aptitudes and values.

Learning Activity 1: Ask each student to list his or her abilities in one column and her or his limitations in another column. Then ask the students to star the limitations which can be improved. Lead a discussion in what limitations can be overcome and those that are difficult to overcome.

Learning Activity 2: Discuss personality traits--talkativeness, shyness, helpfulness, fun-loving, seriousness, friendliness, etc. Keep the discussion objective and avoid judging any of the traits discussed. The point of the discussion is to make children react differently because they have different personality traits.

Learning Activity 3: Stage an "Interest Fair." Ask each child to display something that he has done or made because of a special interest. This might be a culminating activity after a period of time in which students are asked to explore their interests and to try several new skills and activities.

Learning Activity 4: Present a "Cooperative-Competition" activity. Divide the class into small groups of five or six students. Provide each group with magazines, newspapers, construction paper, paste, scissors and magic markers. Have each group select a career cluster to illustrate on a poster. Let the class judge the posters. Then ask each group leader to tell about the special contributions made by each member of the group.

Other Learning Activities

1. Divide class into small groups and assign a career to each for which they are to prepare a commercial to recruit people into that career. Allow each group ample time to write and practice the commercial; then have each group present their commercial to the class.

2. Job Title Word Puzzle. Construct puzzles for each of the fifth grade career clusters similar to the one on the following page. The example given may be torn out and duplicated for student use.

HEALTH WORKERS WORD PUZZLE

P R A C T I C A L N U R S E
S A D B I C O O Y M E A B Q
Y N T Y Z A X Z P P A J A E
C U J D E N T I S T R E B M
H R A Y E D I I E H D X Y P
O S M B Y Y N U N Q O D D R
L E O S Z S E U V L C W O A
O S R K T T L D D A T L C D
G A T P H R M R O V O A T M
I I H F E I T U C C R B O I
S D O Q R P B G T B T W R N
T E D R A E M G O K D O X I
G R O K P R L I R N E R R S
P H N C I C M S F S N K A T
E X T K S L E T J E T E Y R
D D I E T I T I A N A R T A
I B S J V I J Z F G L G E T
A X T O R K S V S O S V C O
T W U G R D D E P C U J H R
R H X N D D B A T O R T N I
I I F S U J E D O W G D I T
C U N T Q R B R N V E N C F
I A W O Z E S L L H O G I P
A H O Y C A O E U Y N C A L
N H Y G I E N I S T I W N G

WORDS TO LOOK FOR

ADMINISTRATOR
CANDY STRIPER
PEDIATRICIAN
DENTIST
DENTAL SURGEON
DIETITIAN
DOCTOR
DRUGGIST
EAR DOCTOR
EYE DOCTOR
HYGIENIST
NURSE
NURSE'S AIDE
LAB WORKER
ORDERLY
ORTHODONTIST
PRACTICAL NURSE
PSYCHOLOGIST
THERAPIST
XRAY TECHNICIAN

FIND THE WORDS LISTED ABOVE AMONG THE SCRAMBLED LETTERS AND CIRCLE, THE WORDS MAY BE SPELLED VERTICALLY, HORIZONTALLY, OR DIAGONALLY.

INSTRUCTIONS FOR SIXTH GRADE TEACHERS

The purpose of this section is to provide specific instructions on the sixth grade career clusters (cluster numbers 11 through 15). To supplement the packet of overhead transparencies for sixth graders, a summary of each new cluster's content will be presented. In addition, suggestions on how to use the sixth grade materials, which includes individual and group learning activities will be given.

SIXTH GRADE CAREER CLUSTERS

In this section a brief description of the five sixth grade career clusters will be presented. In addition, a brief description of the job families within each cluster will be given.

Marine Science Cluster

The Marine Science Cluster consists of careers related to the discovery, cultivation and harvesting of food and minerals from fresh and ocean waters. Some careers within this cluster are concerned with finding new ways to use the resources of lakes, rivers and oceans. Other careers within the cluster deal with designing and building the structures man needs to work under and on top of water.

The job families of the Marine Science Cluster are:

1. Fishing and Aquaculture.

   This job family consists of careers related to the harvesting of fish and other marine produce and to the cultivation of marine life in a controlled environment.

2. Marine Research.

   This job family consists of workers who explore, survey and analyze the physical, chemical, biological and geophysical aspects of the marine environment. People engaged in marine research may teach and do research in a university or work in a laboratory located on a ship or on land.

3. Marine Support Services.

   This job family includes a wide range of support personnel who process, market and distribute marine produce; operate, maintain and repair vessels of all kinds and those who work in laboratories.

4. Marine Technology.

   This job family includes careers concerned with the design and construction of surface and underwater vessels and instruments used for marine exploration and exploitation.

Marketing and Distribution Cluster

Workers within the Marketing and Distribution Cluster are responsible for directing the flow of goods and services from producer to consumer. Career opportunities are almost unlimited within the exciting area of marketing. Some of these careers require ingenuity and responsiveness to the changing demands of customers. Some careers are in management which makes use of the art of getting along with people and organizing activities. Other careers involve the performance of physical tasks such as storing and transporting goods.

The Marketing and Distribution Cluster consists of the following five job families:

1. Distribution.

   This job family includes those careers related to the actual dispersion of goods and service from their source to the consumer. This family offers many career opportunities for people who prefer physical action.

2. Marketing Management and Research.

   This job family includes management careers which are concerned with planning, organizing, staffing, directing, and controlling men and materials. In addition, it includes workers who perform research to analyze economic trends, gather information about customer needs, test the product and analyze salesman performance and advertising effectiveness.

3. Purchasing.

   This job family includes careers which are concerned with identifying supply needs and finding sources of supply.

4. Related Business Services.

   Careers within this job family are concerned with providing marketing supportive services and performing clerical work. In addition, workers in this family arrange credit financing and insurance for marketing and distribution transactions.

5. Sales and Sales Promotion.

   This job family includes careers which are concerned with creating a demand for a product or service, stimulating sales and training sales personnel. In addition, it includes careers related to contacting and completing sales.

Personal Services Cluster

The Personal Services Cluster includes careers which are concerned with personal improvements, the care of a person, the person's apparel or possessions and the person's physical appearance. The long-term growth in the American economy has created a growing demand for services of all kinds. Thus, in addition to the multitude of goods produced and distributed, a growing share of our nation's wealth and manpower is being devoted to the personal services industries. Employment in the personal services area is expected to increase very rapidly through the 1970's. Major factors contributing to the sharp growth in the demand for these services are expected to stem from population growth, rising personal incomes and an interest in more personal comforts. In today's job market, the service area represents an important source of employment to people with various levels of experience and education.

The Personal Services Cluster may be divided into the following four job families:

1. Beauty, Apparel and Special Services

Careers within this job family are related to improving a person's appearance or clothing. Included within this job family are the people who provide services such as hair grooming, weight reducing, make-up and embalming. In addition, this family includes workers who improve the appearance of or repair such items as clothing, furnishing and personal accessories.

2. Domestic Services.

This job family includes those careers which are concerned with the rendering of services for members of a household or their guests.

3. Food and Related Services.

Workers within this job family provide personal services by preparing and serving food and drinks. Workers within this family work in various establishments such as clubs, hotels and restaurants.

4. Lodging and Related Services.

This job family includes workers who provide general services or accommodations to persons in boarding houses, hotels, motels and other similar establishments. This family consists of service oriented personnel such as; housekeeper, maid, porter, custodian and attendant.

Public Service Cluster

The Public Service Cluster includes careers which are people oriented and which are located in local, state and federal government offices. Many public service jobs require people to work longer or at least different hours than those of more traditional employment. Furthermore, dealing with people--their problems, needs and concerns--requires an emotional strength and calm temperament not possessed by everyone. Being service oriented involves a commitment to the task as well as to society and this

personal commitment distinguishes the dedicated public servant from all other workers.

The Public Services Cluster is composed of the following six job families:

1. Administration, Congressional and Regulatory Services.

   This job family includes careers concerned with administering government agencies, making laws and regulating financial establishments such as credit unions, banks and stock exchanges. Careers concerned with public records (birth, marriage, etc.) licensing (occupational, institutional, etc.), customs and immigration are included in this family.

2. Education.

   Careers within this job family are concerned with teaching, counseling, educational supervision and extension education services. Educators perform the functions of adding to the knowledge of the past, helping to select what is to be taught and making critical evaluation of tradition.

3. Post Office.

   This job family consists of careers which are associated with collecting, sorting, processing and delivering mail.

4. Protective Services.

   This job family is composed of careers which are concerned with enforcing laws or regulations designed to protect people from harm to themselves or their property. This family includes local, state and federal police, firefighters and the armed forces.

5. Public Utilities.

   This job family is made up of careers concerned with producing, developing markets for and distributing public utilities to the consumer. Water, gas, electrical and sanitation services are examples of public utilities.

6. Social Services.

This job family includes careers which are concerned with programs of human services. These services include welfare, rehabilitation and correction activities designed to help the public cope with our complex society.

Transportation Cluster

The Transportation Cluster includes all careers which are concerned with the conveyance of people and objects from one place to another. Transportation is necessary for survival of a nation--even if the materials are moved on the backs of people or animals. In any industrial society, an effective system of transportation is vital. Transportation provided the arterial system over which the blood of industry flows. Raw materials, fuel and workers must be transported to factories and the finished goods must be moved to distributors and consumers. In addition, millions of people use the transportation network in traveling for business and pleasure.

The job families which make up the Transportation Cluster are:

1. Airborne Transport.

This job family consists of careers which are concerned with piloting, navigating and providing support services for all forms of air transportation.

2. Highway and Rail Transport.

This job family is comprised of careers involving bus, taxi, truck and train services. Workers in this job family include mechanics as well as drivers of all land based transportation vehicles.

3. Pipeline Transport.

Careers within this job family are in the supervision, repair and operation of the pipeline transport of solids or liquids. The pipeline family is the smallest and most specialized of all the transportation job families.

4. Water Transport.

This job family consists of those careers involved in both ocean and inland water transportation. This family includes workers who pilot, maintain, load and unload all types of watercraft.

SUGGESTIONS FOR USING THE SIXTH GRADE INFOE MATERIALS

If your students did not have exposure to the INFOE materials in the fourth and fifth grade, you will want to concentrate only on the five six grade clusters (clusters 11 through 15). Remember in the sixth grade INFOE kit a review of the fourth and fifth grade clusters is given as well as an additional five career clusters.

After you have familiarized yourself with the sixth grade materials you will be ready to plan how you will use them in your classroom situation. Many sixth grade teachers have found the subjects of language arts and social studies to be ideal for integrating the learning activities and the INFOE materials into their curricula. Math is another area that can be used for some activities. In summary, it is suggested that you select learning activities from this section which can be easily integrated into your daily lessons.

Some general suggestions on how to use the INFOE materials with sixth graders will be given in this section. In addition, a list of sample learning activities will be given to help you emphasize each of the four career development concepts selected for sixth graders.

Implementing the Sixth Grade Materials

The sixth grade INFOE aperture cards are designed primarily for individual student use. However, suggestions are provided in this section to assist you in making group use of the INFOE materials.

In Appendix A, the third two-page inventory list of career clusters (clusters 11 through 15) is for use by sixth graders. It will be helpful if you duplicate this list to be used as individual checklists for students to keep a record of jobs they have studied.

In Appendix B, you will find a simple interest inventory entitled: "What Do I Like--Sixth Grade." This interest inventory may be duplicated and administered to your students to assist them in selecting a cluster of their choice to study. Instructions for using the interest inventory are included on the first page of Appendix B. In addition, a "What Do I Like" interest inventory for all 15 career clusters is included in Appendix B. This interest inventory may be used after students have had time to use and study the sixth grade clusters (clusters 11 through 15).

In Appendix C, a list of new words which are encountered in each of the five career clusters (clusters 11 through 15) of the sixth grade materials is presented. You may wish to duplicate these words for students to study prior to using the INFOE materials.

The packet of overhead transparencies which are included in the sixth grade materials are designed to help you introduce students to the broad overview of each of the five sixth grade clusters. These transparencies will be useful for introducing students to the clusters or for reviewing the clusters already studied. You may wish to add color to these transparencies by coloring the drawings with transparencies

by coloring the drawings with transparency color overlays or coloring pens.

Learning Activities

After students have had an opportunity to explore the sixth grade INFOE materials, they will be ready to engage in the activities presented in this section. Examples of activities to be used in emphasizing each of the sixth grade concepts will be given.

Concept 9: Technological and sociological changes eliminate and create jobs.

Learning Activity 1: Introduce concept of "Adaptation to Change." Discuss how we adapt to changes caused by individual growth and development (wear larger sized clothing, eat more or less, eat different kinds of foods, read more difficult books, do more difficult math, etc.).

Learning Activity 2: Divide class into two groups. Ask one group to collect pictures or make drawings of types of transportation used in the late 1800's and early 1900's. Ask the other group to do the same for modern transportation. After each group has completed their task and reported to the entire class, discuss the changes in jobs that have occurred because of new types of transportation.

Learning Activity 3: Ask students to use the daily newspaper to find news stories about changes being planned for their community (reports of city council meetings, county court proceedings, etc.). Keep a large scrapbook in the classroom in which newspaper clippings can be placed as children bring them in. Encourage children to use the scrapbook to find out how people in the community plan for change. Discuss jobs which might be affected by the changes.

Learning Activity 4: Divide the class into groups of three or four children. Ask each group to select a city in which they are interested. Give each group adequate time to find out all they can about their selected city. Ask each group to make a presentation of their findings to the class, using as many visual aids as possible. Assist the students in locating films, filmstrips, slides, books and magazines to use in presenting their materials. You may wish each group to engage in some of the following activities:

1. Locate the cities on a large map. Identify each city with a picture which shows something that is unique to that city.

2. Give a report on the history of the city. Show a film or filmstrip if possible.

3. Find pictures illustrating the major industries of the cities and show on a bulletin board. Indicate how these industries have changed since the early beginnings of the city.

4. Contrast early life in the cities being studied with life today. Discuss the changes in jobs that have taken place and the reasons for them.

Concept 10: Geographical settings determine the types of careers available.

Learning Activity 1: Divide the class up into five groups. Assign each group one of the five sixth grade INFOE clusters (clusters 11 through 15) to review. Have each group study their assigned cluster and identify jobs from each that may exist in only some geographic areas of the country. Discuss why this is true.

Learning Activity 2: Play "Transportation Charades." Have individual students study a selected job title from the transportation cluster and pantomine the worker for the entire class. Have class worker guess the name of the worker and discuss what part of the U. S. he might work and why.

Concept 11: Information about a variety of careers is needed by all individuals.

Learning Activity 1: Propose the following situation to your class:

> Dan Jones has been an auto mechanic for five years. He likes his work and is well paid. Two weeks ago, Dan was hurt in a car accident. The doctor says that Dan will not be able to be an auto mechanic any more and he should find a different kind of work where he would not have to be on his feet most of the day.

Ask the following questions and lead a class discussion on the answers:

1. What can I do?

2. What other jobs are there related to auto mechanics that Dan might be able to do?

3. Would a knowledge of other jobs and what is required of workers in them be helpful to Dan? Why?

Learning Activity 2: A trip to a county courthouse or city hall could be a motivating activity for the study of local and city government and the people who are involved in this public service area. Divide class into groups of three or four students. Ask each group to interview a government worker and find out what he does. Have each group report back to the class in a sharing session. Discuss why it's important to know what different workers do even if you do not have an interest in their career.

Concept 12: Career development requires a continuous and sequential series of choices.

Learning Activity 1: Propose the following situation to your class:

> Jane Scott likes to fix hair. She washes and sets her own hair and does an excellent job. But Jane does not like to talk to or be around people. She knows if she goes to beauty school and becomes a beautician she will be around many people at all times. She would have to talk to people constantly and she doesn't think she can do that.

Discuss with the class what choices Jane might make and why.

Learning Activity 2: Present the following situation to your class:

> June Davis had wanted to be a plumber since she was a little girl. She selected shop courses in high school to prepare for this career. She then attended a plumber's school for one year after completing high school. Upon completing the plumber's course, she could not find a job.

What might be the reasons? What alternatives does June have and why?

Learning Activity 3: Divide your class into five small groups. Assign each group one of the five sixth grade career clusters to review. Ask each group to select two job titles from each cluster and report to the class possible decisions a person would have to make if they

possible decisions a person would have to make if they were going to prepare the select job as a career. What kind of education, work experience, etc. would be needed? Have each group report to the entire class.

Other Learning Activities

1. Charades (small group game)

   Divide class into small groups as in the above game and assign a cluster to each group from which job titles to be acted out are selected.

   Example: Group A - Group B

   Each student in Group A will identify a job title from the cluster selected for Group A. This title will be written on a small piece of paper and will be folded. Each student in Group B will do the same for their cluster. Then the folded pieces of paper will be placed in a small box. Team A will then exchange boxes with Team B. Each student in Team A will draw a job title from the box of titles provided by Team B and will act out the job title in his turn. Other members of Team A will try to identify the job title. Team B will then proceed to do the same. The length of time it takes for each team to complete the guessing of the titles will be determined. The team which requires the least total time to act out and guess the titles wins.

2. What's My Line?

   Allow each student to select a career in which he has an interest and role play the career in front of the class. The class will have to guess what the career is.

3. Job Title Word Puzzle

   Have students construct puzzles for the sixth grade career clusters similar to the one on the following page. You may wish to tear out the example and duplicate it for student use.

PERSONAL SERVICES WORD PUZZLE

D H W H W Y G H P S M
O O A X F F Q O F H A
G T S T M G N U L A N
T E H A I J N S E M I
R L I B H Y G E K P C
A M N Q B X H M U O U
I A G D C E F A O O R
N N M J O B L N G I I
E A A W A O M L F S S
R G C I C N R J B T T
M E H N Y V I M F O S
A R I D L H L T A J Y
K L N O J K X U O N R
E V E W M A I D H R C
U K O W G B F N B Y U
P S P A C L A J G D Q
A T E S E V X R F T J
R I R H U Y T O B P F
T U A E P Q U T E E S
I C T R I J M F T J R
S D O G G R O O M E R
T B R D S L M C B Q U
W I G S T Y L I S T P
H A I R D R E S S E R

WORDS TO LOOK FOR

MAID

JANITOR

WINDOW WASHER

BARBER

MAKE-UP ARTIST

SHAMPOOIST

HAIRDRESSER

MANICURIST

WASHING MACHINE OPERATOR

DOG GROOMER

DOG TRAINER

BELLBOY

WIG STYLIST

DOORMAN

HOUSEMAN

HOTEL MANAGER

FIND THE WORDS LISTED ABOVE AMONG THE SCRAMBLED LETTERS AND CIRCLE.

THE WORDS MAY BE SPELLED VERTICALLY, HORIZONTALLY, OR DIAGONALLY.

APPENDIX A

INVENTORIES OF CAREER CLUSTERS AND JOB TITLES FOR FOURTH, FIFTH AND SIXTH GRADE STUDENTS

INVENTORY OF FOURTH GRADE CAREER CLUSTERS
AND JOB TITLES

CLUSTER 01 - AGRI-BUSINESS AND NATURAL RESOURCES

__ 01 - Introduction
__ 02 - Agricultural Chemical Salesman
__ 03 - Agricultural Commodities Grader
__ 04 - Agricultural Equipment Salesman
__ 05 - Biologist
__ 06 - County-Agricultural Agent
__ 07 - Farm Equipment Mechanic
__ 08 - Farmer
__ 09 - Farm Foreman
__ 10 - Feed Mill Operator
__ 11 - Forestry Aide
__ 12 - Game and Fish Officer
__ 13 - General Farm Hand
__ 14 - Geologist
__ 15 - Horseshoer
__ 16 - Horse Trainer
__ 17 - Miner
__ 18 - Soil Conservationist
__ 19 - Tree Trimmer
__ 20 - Vocational Agricultural Teacher

CLUSTER 02 - BUSINESS AND OFFICE

__ 01 - Introduction
__ 02 - Accountant
__ 03 - Accounting Clerk
__ 04 - Administrative Assistant
__ 05 - Audit Clerk
__ 06 - Banker
__ 07 - Bank Teller
__ 08 - Bookkeeper
__ 09 - Clerk Typist
__ 10 - Computer Operator
__ 11 - Computer Programmer
__ 12 - File Clerk
__ 13 - General Secretary
__ 14 - Key-Punch Operator
__ 15 - Legal Secretary
__ 16 - Medical Records Clerk
__ 17 - Medical Secretary
__ 18 - Personnel Manager
__ 19 - Receptionist
__ 20 - Stenographer

CLUSTER 03 - COMMUNICATIONS & MEDIA

__ 01 - Introduction
__ 02 - Cable Splicer
__ 03 - Commercial Artist
__ 04 - Copy Reader
__ 05 - Copy Writer
__ 06 - Darkroom Technician
__ 07 - Information Operator
__ 08 - Motion Picture Projectionist
__ 09 - Newspaper Editor
__ 10 - Newspaper Reporter
__ 11 - Radio and TV Announcer
__ 12 - Sign Painter
__ 13 - Technical Illustrator
__ 14 - Technical Writer
__ 15 - Telephone Company Frameman
__ 16 - Telephone Operator
__ 17 - Telephone Station Installer
__ 18 - Telephone Supplyman
__ 19 - Teletype Operator
__ 20 - Television Cameraman

CLUSTER 04 - CONSTRUCTION

__ 01 - Introduction
__ 02 - Air Hammer Operator
__ 03 - Architect
__ 04 - Architect's Assistant
__ 05 - Bricklayer
__ 06 - Building Inspector
__ 07 - Carpenter
__ 08 - Cement Mason
__ 09 - Civil Engineer
__ 10 - Construction Electrician
__ 11 - Electrical Repairman
__ 12 - Engineering Aide
__ 13 - General Laborer
__ 14 - Heavy Equipment Operator
__ 15 - Painter
__ 16 - Plasterer
__ 17 - Plumber
__ 18 - Roofer
__ 19 - Sheet Metal Worker
__ 20 - Welder

CLUSTER 05 - CONSUMER AND HOMEMAKING

__ 01 - Introduction
__ 02 - Alteration Tailor
__ 03 - Child Care Worker
__ 04 - Consultant on Housing Design
__ 05 - Color Expert
__ 06 - County Extension Home Economist
__ 07 - Dietician
__ 08 - Dietician Technician
__ 09 - Domestic Maid
__ 10 - Drapery Seamstress
__ 11 - Food Service Supervisor
__ 12 - Home Ecnomics Teacher
__ 13 - Home Economist
__ 14 - Home Lighting Advisor
__ 15 - Homemaker
__ 16 - Household-Products Technician
__ 17 - Interior Designer-Decorator
__ 18 - Presser
__ 19 - Research Nutritionist
__ 20 - Sewing Instructor

INVENTORY OF FIFTH GRADE CAREER CLUSTERS
AND JOB TITLES

CLUSTER 06 - ENVIRONMENT

__ 01 - Introduction
__ 02 - Air Analyst
__ 03 - Camp Ground Caretaker
__ 04 - Entomologist
__ 05 - Fire Lookout
__ 06 - Fishery Biologist
__ 07 - Forest Fire Fighter
__ 08 - Garbage Collection Foreman
__ 09 - Garbage Truck Driver
__ 10 - Land Use Technician
__ 11 - Park Naturalist
__ 12 - Pest Control Worker
__ 13 - Plant Pathologist
__ 14 - Radiation Monitor
__ 15 - Sanitarian
__ 16 - Septic Tank Serviceman
__ 17 - Sewage Plant Attendant
__ 18 - Sewage Plant Operator
__ 19 - Urban Planner
__ 20 - Water Treatment Plant Operator

CLUSTER 08 - HEALTH

__ 01 - Introduction
__ 02 - Admitting Clerk
__ 03 - Ambulance Driver - Attendant
__ 04 - Audiologist
__ 05 - Dental Assistant
__ 06 - Dental Hygienist
__ 07 - Dental Lab Technician
__ 08 - Licensed Practical Nurse
__ 09 - Medical Assistant
__ 10 - Medical Laboratory Assistant
__ 11 - Medical Records Librarian
__ 12 - Medical Technologist
__ 13 - Nurse's Aide
__ 14 - Optical Benchman
__ 15 - Optometrist
__ 16 - Orderly
__ 17 - Physical Therapist
__ 18 - Podiatrist
__ 19 - Radiological Technician
__ 20 - Veni-Puncture Specialist

CLUSTER 07 - FINE ARTS AND HUMANTIES

__ 01 - Introduction
__ 02 - Actor or Actress
__ 03 - Cartoonist
__ 04 - Clergyman
__ 05 - Clothes Designer
__ 06 - Dancer
__ 07 - Dance Instructor
__ 08 - Historian
__ 09 - Interpreter
__ 10 - Jewelry and Flatware Designer
__ 11 - Model
__ 12 - Museum Technician
__ 13 - Musician
__ 14 - Playwright
__ 15 - Photographer
__ 16 - Poet
__ 17 - Stage Manager
__ 18 - Toy Designer
__ 19 - Translator
__ 20 - Vocalist

CLUSTER 09 - HOSPITALITY AND RECREATION

__ 01 - Introduction
__ 02 - Acrobat
__ 03 - Athletic Coach
__ 04 - Athletic Director
__ 05 - Auto Race Driver
__ 06 - Camp Counselor
__ 07 - Clown
__ 08 - Concession Attendant
__ 09 - Information Center Personnel
__ 10 - Jockey
__ 11 - Lifeguard
__ 12 - Professional Athlete
__ 13 - Ski-tow Operator
__ 14 - Transportation Clerk
__ 15 - Travel-Accommodation Appraiser
__ 16 - Travel Agent
__ 17 - Travel Counselor
__ 18 - Umpire
__ 19 - Usher
__ 20 - Zoo Keeper & Attendant

CLUSTER 10 - MANUFACTURING

__ 01 - Introduction
__ 02 - Aerospace Engineer
__ 03 - Chemical Analyst
__ 04 - Chemical Engineer
__ 05 - Electronics Technician
__ 06 - Fork Life Operator
__ 07 - Foundry Worker
__ 08 - Industrial Maintenance Mechanic
__ 09 - Industrial Organization Manager
__ 10 - Machinist
__ 11 - Molder & Coremaker
__ 12 - Organic Chemist
__ 13 - Potman
__ 14 - Quality Control Inspector
__ 15 - Rolling Mill Operator
__ 16 - Spinner
__ 17 - Tool and Die Maker
__ 18 - Tool Clerk
__ 19 - Tool Grinder Operator
__ 20 - Winder

INVENTORY OF SIXTH GRADE CAREER CLUSTERS
AND JOB TITLES

CLUSTER 11 - MARINE SCIENCE

__ 01 - Introduction
__ 02 - Aquatic Biologist
__ 03 - Clam Dredge Operator
__ 04 - Clam Dredgeman
__ 05 - Deep Sea Diver
__ 06 - Dockman
__ 07 - Dockmaster
__ 08 - Fish Cleaner
__ 09 - Fish Culturist
__ 10 - Frog Farmer
__ 11 - Hatchery Man
__ 12 - Marine Architect
__ 13 - Marine Engineer
__ 14 - Marine Engine Machinist
__ 15 - Marine Geologist
__ 16 - Motorboat Mechanic
__ 17 - Motorboat Operator
__ 18 - Shellfish Shucker
__ 19 - Skin Diver
__ 20 - Sponge Gatherer

CLUSTER 12 MARKETING AND DISTRIBUTION

__ 01 - Introducton
__ 02 - Actuary
__ 03 - Auctioneer
__ 04 - Building Supply Salesman
__ 05 - Buyer
__ 06 - Catalog Order Clerk
__ 07 - Credit Analyst
__ 08 - Credit Manager
__ 09 - Department Store Sales Clerk
__ 10 - Displayman
__ 11 - Grocery Clerk
__ 12 - Insurance Agent
__ 13 - Jobber
__ 14 - Market Research Analyst
__ 15 - Packaging Worker
__ 16 - Real Estate Salesman
__ 17 - Research Director
__ 18 - Shipping & Receiving Clerk
__ 19 - Stock Clerk
__ 20 - Warehouseman

CLUSTER 13 - PERSONAL SERVICES

__ 01 - Introduction
__ 02 - Barber
__ 03 - Bartender
__ 04 - Bell Boy
__ 05 - Bootblack
__ 06 - Bus Boy
__ 07 - Butler
__ 08 - Caterer
__ 09 - Chauffeur
__ 10 - Chef
__ 11 - Cook
__ 12 - Cosmetologist
__ 13 - Custodian
__ 14 - Embalmer
__ 15 - Funeral Director
__ 16 - Hotel-Motel Front Office Clerk
__ 17 - Machine Rug Cleaner
__ 18 - Service Station Attendant
__ 19 - Tattoo Artist
__ 20 - Waiter/Waitress

CLUSTER 14 - PUBLIC SERVICES

__ 01 - Introduction
__ 02 - City Manger
__ 03 - Civil Defense Training
__ 04 - Officer
__ 04 - Court Reporter
__ 05 - Deputy Sheriff
__ 06 - FBI Special Agent
__ 07 - Fingerprint Technician
__ 08 - Guidance Counselor
__ 09 - Highway Patrolman
__ 10 - Juvenile Officer
__ 11 - Law Enforcement Clerk
__ 12 - Library Assistant
__ 13 - Mail Carrier
__ 14 - Meter Reader
__ 15 - Music Teacher
__ 16 - Peace Corp Volunteer
__ 17 - Post Office Clerk
__ 18 - Social Worker
__ 19 - Teacher Aide
__ 20 - U.S. Senator

CLUSTER 15 - TRANSPORTATION

__ 01 - Introduction
__ 02 - Aircraft Fuel Serviceman
__ 03 - Airline Pilot
__ 04 - Airline Stewardess/Steward
__ 05 - Airline Ticket Agent
__ 06 - Air Traffic Controller
__ 07 - Auto Mechanic
__ 08 - Intercity Bus Driver
__ 09 - Local Truck Driver
__ 10 - Locomotive Engineer
__ 11 - Longshoreman
__ 12 - Motor Transit Driver
__ 13 - Pumpman
__ 14 - Railway Express Agent
__ 15 - School Bus Driver
__ 16 - School Bus Mechanic
__ 17 - Station Engineer
__ 18 - Steward/Stewardess
__ 19 - Taxicab Driver
__ 20 - Traffic Rate Clerk

APPENDIX B

INTEREST INVENTORIES FOR GRADE FOUR, FIVE AND SIX

DIRECTIONS FOR "WHAT DO I LIKE"

1. Read each of the statements on the "What Do I Like" sheet.
2. Make a check in the "yes" circle beside the statement if it tells something you like to do.
3. Make a check in the "no" circle beside the statement if it tells something you do not like to do.
4. Place a check in all circles under the columns to the right of any statement for which you check "yes".
5. Count the number of checks in each column and put this number in the "totals" box at the bottom of the page under each column.
6. The column in which you receive the largest number of checks identifies the cluster with which you will begin in exploring INFOE.
7. The column numbers stand for the clusters as identified below:

4th Grade

01 Agri-Business and Natural Resources

02 Business and Office

03 Communications & Media

04 Construction

05 Consumer & Homemaking

5th Grade

06 Environment

07 Fine Arts & Humanties

08 Health

09 Hospitality & Recreation

10 Manufacturing

6th Grade

11 Marine Science

12 Marketing & Distribution

13 Personal Services

14 Public Services

15 Transportation

WHAT DO I LIKE?

FOURTH GRADE

Directions: Read each statement. Place a check in the yes circle after each statement if it tells something you like to do. Place a check in the no circle if it is something you do not like to do.

	YES	NO	Clusters 01	02	03	04	05
1. I like to play outdoors	○	○	○			○	
2. I enjoy working with animals	○	○	○				
3. I like to travel	○	○	○				
4. I enjoy working math problems	○	○		○			
5. I enjoy working with other people	○	○		○			○
6 I like to plan ahead	○	○		○			
7. I like to draw pictures	○	○			○		
8. I like to write	○	○			○		
9. I enjoy working with tools	○	○			○	○	
10. I like to do experiments	○	○	○				○
11. I like to work with machines	○	○	○			○	
12. I like to help other people	○	○					○
13. I enjoy taking care of younger children	○	○					○
14. I like to fix things	○	○				○	
15. I like to build things	○	○				○	
16. I like to read	○	○			○		
17. I like to play indoors	○	○		○	○		
18. I enjoy talking to people	○	○		○			○
TOTALS							

The number of column under which I received largest number of checks. ____

WHAT DO I LIKE?

FIFTH GRADE

Directions: Read each statement. Place a check in the yes circle after each statement if it tells something you like to do. Place a check in the no circle if it is something you do not like to do.

	YES	NO	Clusters 06	07	08	09	10
1. I enjoy helping other people	○	○			○	○	
2. I like to study math and science	○	○					○
3. I enjoy working alone	○	○	○				
4. I enjoy games and sports	○	○				○	
5. I like to work with people	○	○		○			
6. I enjoy making plans	○	○					○
7. I enjoy solving problems	○	○	○				○
8. I like to read about new things	○	○			○		
9. I like to play a musical instrument	○	○		○			
10. I like to draw pictures	○	○		○			
11. I like to work with machines	○	○	○				○
12. I enjoy swimming and boating	○	○				○	
13. I like to work indoors	○	○			○		
14. I like to think for myself	○	○	○				
15. I enjoy being friendly and polite	○	○			○		
16. I enjoy getting to know people	○	○		○		○	
17. I like to follow instructions	○	○			○		
18. I like to work outdoors	○	○	○				
19. I like to complete anything I start	○	○		○			○
20. I like to entertain other people	○	○				○	
TOTALS							

The number of column under which I received largest number of checks. ____

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WHAT DO I LIKE?

SIXTH GRADE

Directions: Read each statement. Place a check in the yes circle after each statement if it tells something you like to do. Place a check in the no circle if it is something you do not like to do.

	YES	NO	Clusters 11	12	13	14	15
1. I prefer to work outdoors	○	○	○				
2. I like to travel	○	○					○
3. I enjoy working with numbers	○	○		○			
4. I enjoy working with other people	○	○		○		○	
5. I like to plan ahead	○	○		○			
6. I enjoy talking to people	○	○		○		○	
7. I prefer to work indoors	○	○		○			
8. I enjoy working with tools	○	○					○
9. I like to repair things	○	○					○
10. I like to help other people	○	○			○	○	
11. I like to do science experiments	○	○	○				
12. I like to prepare foods	○	○			○		
13. I enjoy doing things for other people	○	○				○	
14. I like to study math and science	○	○	○				
15. I like to read about new things	○	○	○				
16. I like to work with machines	○	○					○
17. I enjoy swimming and boating	○	○	○				
18. I like to follow instructions	○	○			○		
19. I enjoy being friendly	○	○			○	○	
20. I enjoy getting to know people	○	○			○		○
TOTALS							

The number of column under which I received largest number of checks. ____

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SIXTH GRADE WHAT DO I LIKE?

	YES	NO	CLUSTER NUMBER 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. I prefer to work outdoors	○	○	○	○		○						○				○	
2. I enjoy working with animals	○	○	○														
3. I like to travel	○	○	○										○				○
4. I enjoy working with numbers.	○	○							○	○		○	○	○			
5. I enjoy working with other people	○	○					○			○			○	○	○	○	
6. I like to organize and plan ahead	○	○		○	○					○		○	○	○			
7. I like art and art classes	○	○			○			○									
8. I like to do original writing	○	○			○			○									
9. I enjoy working with tools	○	○				○					○						○
10. I like to do science experiments	○	○	○	○			○		○			○			○		
11. I prefer working alone	○	○		○				○				○					○
12. I like to work with machines	○	○	○	○		○					○						
13. I like to help other people	○	○					○		○	○					○	○	○
14. I enjoy taking care of children	○	○					○								○		
15. I like to repair things	○	○				○					○					○	○
16. I like to play a musical instrument or sing	○	○						○									
17. I like to build things	○	○				○					○						
18. I like to read	○	○			○			○	○								
19. I prefer to work indoors	○	○			○		○		○		○			○	○		
20. I enjoy talking to people	○	○								○			○	○	○	○	
TOTALS																	

APPENDIX C

VOCABULARY FOR GRADES FOUR, FIVE AND SIX

VOCABULARY FOR FOURTH GRADE CLUSTERS

Agri-Business & Natural Resources Cluster

1.	agri-business	everything dealing with growing, buying, selling and serving crops and animals raised for food.
2.	agriculture	the art of growing and raising crops and animals for food.
3.	bridle	the part of a horse's harness made of leather and metal used on the horse's head to hold back and control a horse.
4.	bulldozer	a large tractor on metal tracks which moves dirt with a metal blade at its front end.
5.	combine	a farm machine that cuts and cleans grain such as wheat and oats.
6.	federal government	central government of the U.S. which represents all the states.
7.	gauge	an instrument or tool used for measuring the amount of something.
8.	harness	leather and metal fittings which go around a horse's body to connect him to a plow or wagon.
9.	mineral	material obtained from the earth such as coal, salt or water.
10.	ore	rock, sand or dirt which contains some metal such as iron ore which is rock containing iron.
11.	rancher	a person who manages or works on a ranch which is a large farm for raising animals such as cattle, horses or chickens.
12.	raw materials	things taken as they are which can be made more useful or made more valuable.

Business & Office Cluster

1.	appointment	a time set up for a meeting.
2.	business	work which one does or a place where one works.
3.	clinic	a place where one goes to get medical advice or treatment
4.	computer	a machine that helps solve problems by doing adding, subtracting, dividing and multiplying of numbers very quickly.
5.	dictation	words taken down by hand or by recording so that they can be obtained later.
6.	file	a place for keeping papers in order so they can be obtained quickly.
7.	grammar	the study of the proper use of words.
8.	hire	to get someone to do a job for pay.
9.	keyboard	a set of keys on a typewriter or adding machine used to run the machine.
10.	labor union	an organization (club) of workers which helps have good working conditions and good pay.
11.	microfilm	a film upon which written words or drawings are photographed in small sizes so that many pages of information can be stored in a small space.
12.	records	written papers which are kept for future use.
13.	shorthand	a way of writing quickly which uses symbols in place of letters.

Communications & Media Cluster

1.	catalog	a book showing pictures and prices of what a business has for sale.
2.	commercial	a radio or television program used to tell people about something for sale.
3.	customer	one who buys a service or something.
4.	darkroom	a room which is kept dark and is used for developing film and photographs.
5.	editorial	a newspaper or magazine write-up which gives the thinking of an editor about some subject.
6.	producer	one who makes something others can use.
7.	punctuation	use of periods, commas and other marks to help make the meaning of sentences clear.
8.	scientist	one who knows much about science.
9.	switchboard	a setup of wires and plugs that a telephone operator uses to connect two telephone lines so people may talk to each other by telephone.
10.	theater	a place where plays are acted or where movies are shown.
11.	warehouse	a place, usually a building, where goods are kept.

Construction Cluster

1.	apprentice	a person who is learning a new job by working with another person who is trained in the job.
2.	concrete	a mixture of cement, sand, gravel and water that hardens as it dries.
3.	engineer	a person who plans and tells others how to build such things as machines, roads, bridges or canals.
4.	factory	a building or group of buildings where many people work to make things.
5.	gravel	small pebbles and pieces of rocks which are used to build roads.
6.	machinery	the parts that make up a machine.
7.	model	a small size copy of an object.
8.	plaster	a soft mixture of lime, sand and water that hardens as it dries and is used to cover walls and ceilings in a building.
9.	pride	thinking well of one's self
10.	stucco	a plaster used for covering the outside walls of a building.
11.	skilled	having skill or being able to do a job well.
12.	shingle	a thin piece of wood or other material used to cover the roof on a building.

Consumer & Homemaking Cluster

1.	advisor	a person who gives someone else advice on how to do something.
2.	expert	a person who has skill or who knows much about some special thing.
3.	measuring tape	a tape marked off in inches used to tell the length, width or height of something.
4.	company	a group of people joined together for some purpose.
5.	products	something made or produced by a company.
6.	research	a careful hunting for facts or truth.
7.	specialist	one who does a job well so that other people look to him for advice.
8.	supervisor	a person who oversees or has charge of the work of other people.
9.	technician	one who is skilled in the details of a job which requires one to know much about applied science.

VOCABULARY FOR FIFTH GRADE CLUSTERS

Environment Cluster

1.	bacteria	very tiny plants that can usually be seen only through a microscope.
2.	conservation	a careful planning to protect something or to avoid waste.
3.	disposal plant	a setup of machinery used to remove waste from sewage.
4.	headquarters	main office of a company or organization where orders are sent out.
5.	insect	a small animal, having its body divided into three parts, with six legs and usually one or two pairs of wings.
6.	laboratory	a place set up to do experiments and tests.
7.	land zoning	setting aside land for certain purposes such as for building homes, building factories or building shopping centers.
8.	lecture	a planned talk given on a subject.
9.	mathematical formula	a rule or principle given in algebraic symbols (letters and numbers)
10.	nuclear power plant	a place where atomic energy is used to make electricity.
11.	nuclear weapons	weapons such as hydrogen or atomic bombs which use atomic energy to make them work.
12.	particles	very small parts or pieces of something.
13.	pest	an insect or animal that bothers or does harm to something or someone.
14.	radiation	giving off of energy in the form of heat, light or other rays you cannot feel.
15.	survey	(verb) to measure the size, shape and location of land using special measuring instruments.

Fine Arts & Humanties Cluster

1.	article	a written story on a subject which is published in a magazine, newspaper or book.
2.	fabric	cloth or other woven or knitted material.
3.	industry	a branch or part of a business or manufacture that employs many people.
4.	music conservatory	a special school where people study music
5.	pattern	a model or outline, usually made of paper, used as a guide for cutting cloth.
6.	rehersal	a practice time set up to prepare people to perform for the public.
7.	sermon	a talk by a preacher or clergyman on religion given as part of a worship service.

Health Cluster

1.	ceramic	a hard, brittle material made by heating clay, water and other material to a high temperature.
2.	microscope	an instrument that is used to increase the size of something too small to be seen by the eye to a size that can be seen.
3.	patient	a person who is receiving medical care.
4.	prescription	a written direction or order for medicine.
5.	sterilize	(verb) to make free from germs.

Hospitality & Recreation Cluster

1.	certificate	a written or printed statement showing proof that a person has the knowledge or experience to do a job.
2.	competition	contest or act of trying to win.
3.	itinerary	a list of places a traveler will visit.
4.	penalty	a disadvantage put on a side or a player for breaking the rules of a game.
5.	referee	a person who decides on the rules to be used in a game or sport.
6.	reservation	an appointment made for a service.
7.	scholarship	money given to help a student pay for his education.
8.	skit	a short play that is funny or makes fun of something.
9.	tourist	a person who is traveling for pleasure.
10.	visa	a signed paper showing a person has been approved to travel to another country.

Manufacturing Cluster

1.	bobbin	a reel or spool used to hold thread or yarn on a knitting machine.
2.	detergent	a cleaning material.
3.	diagram	a drawing or sketch showing important parts of something.
4.	flaw	a crack or small error in an object.
5.	formula	a rule for doing something written in math symbols.
6.	inventory	a detailed list of goods on hand.
7.	marketing	act of buying and selling.
8.	qualified	capable of doing something or fitted for a purpose.
9.	supervise	(verb) look after or direct work or workers.
10.	specialize	(verb) to make an effort to learn much about a special area of work.
11.	standard	something that is accepted and widely used.
12.	textiles	cloth or fiber and yarn used to make cloth.

VOCABULARY FOR SIXTH GRADE CLUSTERS

Marine Science Cluster

1.	aqualung	underwater breathing gear made up of a container of air and a leakproof face mask.
2.	aquatic	anything that grows or lives in water.
3.	conveyor	machinery consisting of a moving belt or chain used to move material or packages from place to place.
4.	fumes	vapor, gas or smoke.
5.	keel	the main timber or steel piece that extends the length of the bottom of a ship or boat.
6.	prong	the sharp, pointed part of a fork or hook.
7.	spawn	eggs of fishes or oysters
8.	sponge	the soft inner skeleton on many kinds of sea animals that soaks up water and is used in cleaning.
9.	valve	a movable control in a pipe used to start and stop the flow of a liquid or gas through the pipe.
10.	winch	a powerful machine with one or more drums on which a rope, cable or chain is wound so heavy objects can be moved by winding the rope around the drum.

Marketing & Distribution Cluster

1.	account	a record of money paid out and money coming into a business.
2.	balance sheet	a paper form used to record the money coming into a business and the money going out.
3.	bank statement	a written statement of the money put in and checked out of a person's bank account.
4.	budget	a written plan of how a company or a person intends to spend a certain amount of money.
5.	credit	trust put in a person's ability and promise to pay for something.
6.	insurance policy	a written agreement given to a person or company buying insurance that gives details on what is insured.
7.	loan	money given to a person who promises to pay it back with interest.
8.	masonry	something built of concrete and brick, stone or cinder block.
9.	merchandise	goods for sale
10.	property	something owned by a person or a group of people.
11.	warehouse	a building where goods or materials are stored.

Personal Services Cluster

1.	beverage	liquid for drinking; any liquid other than water.
2.	casket	a box, usually fine and beautiful, in which a dead person's body is placed to be buried.
3.	cafeteria	an eating place where people go through a line and select their own food.
4.	corpse	the dead body of a person or animal.
5.	dye	(verb) to change color with a coloring chemical.
6.	fashion	way of dressing, behaving or being that is liked by people at any one time or place.
7.	license	permit given by law to do something.
8.	scalp	the skin and hair on a person's head.
9.	tip	a small sum of money given for a service.
10.	uniform	clothes of the same style worn by people doing the same kind of work; for example, a soldier's uniform.

Public Services Cluster

1.	bookkeeping	act of writing down the accounts of a business.
2.	council	a group of people called together to give advice or to discuss and settle questions.
3.	campaign	a number of similar activities planned for a single purpose.
4.	document	written or printed materials that give information and can be used as evidence of some fact.
5.	courtroom	room or place where court trials are held.
6.	pamphlet	a small, thin book made of paper sheets usually with a paper cover.
7.	policy	plan of action or written way a business or government is run.
8.	recreation	play or anything done for fun or to relax.

Transportation Cluster

1.	cargo	goods or materials carried on a ship, airplane or truck.
2.	complaint	finding fault.
3.	crew	a group of people working on one job.
4.	freight	goods or materials to be transported by a ship, airplane or truck.
5.	magazine	a publication appearing weekly or monthly containing stories and articles by different writers.
6.	monitor	a person who gives advice or warnings.
7.	passenger	a traveler on a train, boat, bus, auto or plane.
8.	refueling	putting fuel such as gasoline in a vehicle such as a truck.
9.	station	a regular stopping place on a transportation route; for example, train station.